AEC Bennoc Century Mine Application OH0144576, OIL00159

Questions for OEPA regarding AEC Bennoc Century Mine Draft Permit
January 30, 2013

1. Which pollutants are best to utilize to limit toxicity, sulfate, TDS, chloride, etc.? Did OEPA consider including the use of chloride, in addition to sulfate, to limit toxicity, since chloride has both chronic and acute criterion? Please explain.

2. Piney Creek is referenced in the OEPA Report DSW/EAS 2010-4-1, Biological and Water Quality Study of Captina Creek Watershed as having exceedances for TDS which adversely impacts its macroinvertebrates.
   "...the macroinvertebrates are adversely impacted by the high concentration of TDS, conductivity and metals from the AEC mine discharge at river mile 2.8. Mayflies are very sensitive to TDS and are almost completely absent from Piney Creek downstream from the mine discharge. It is recommended that AEC provide better treatment of their discharge to remove the high TDS or to avoid discharging during low flow conditions when the TDS concentrations are exacerbated by lack of dilution."

   Does the current approach of using a 48 hour limit of discharge, with additional discharges allowed during wet weather events, protect water quality from chronic impacts as well as a numeric limit for TDS would? Please explain.

3. OEPA states that the discharge is limited to 48 hours per event. This is because the TDS criterion is to protect against chronic exposures. The TDS criterion is categorized as Outside Mixing Zone Average (OMZA). Please explain this category. Does the State assume 4 day exposure for chronic aquatic life criteria? Is this a moving average? What is the recovery period allowed? Will the aquatic life use be met when the receiving water is at zero flow?

4. The diagrams for Pond 001 & Pond 002 appear to indicate there is only 1 foot of freeboard. This does not seem sufficient to allow for settling and retention time. Is there the ability to draw down the ponds in order to allow for more storage capacity? Additionally, is there the ability to draw down the ponds specifically in anticipation of a large rain event? Please provide updated plans for the pond expansion/ construction that accurately depict pond configurations and how the sizing of the new pond design, adequate freeboard, vegetation/ rip-rap, sediment storage and dewatering devices/ primary spillways ensures flow control, representative flow and water chemistry

sampling.

5. The 1.3 multiplier for deriving IMZM values from OMZM values: How was the multiplier used applicable to this site? Should the 1.3 multiplier be applied if there is determined to be no dilution available in the tributaries to Piney Creek, as suggested in the September 15 compilation of documents? Please explain.

6. Monitoring frequencies for Pond 001 and Pond 002 differ for several parameters, see pages 2 & 4 of permit. Pond 001, has the following parameters pH, TSS, chloride, sulfate, selenium, iron and manganese being measured once every 2 weeks. Pond 002 has those same parameters being measured 2 times per week. Since both ponds are allowed to discharge a maximum of 48 hours within a 7 day period, please explain how the sampling frequency for Pond 001 is representative, especially in the event of a 48 hour discharge.

7. USEPA believes the proposed criterion for sulfate is not correct. OEPA calculated the sulfate limit as 2435 mg/L. USEPA calculated the sulfate value as 1684 mg/L. The 1684 number was derived using your spreadsheet which had the following formula borrowed from Illinois: Acute WQS for Sulfate= [1276.7+5.508(hardness) - 1.457(chloride)]*0.65. EPA used the same inputs as AEC, which were the average of values from the Ohio EPA online water quality map for Piney Creek at State Route 148: hardness = 283; chloride = 168. The Ohio calculation used the effluent hardness and chloride values of 500 mg/L and 195 mg/L, respectively. USEPA estimates that effluent discharges would reach Piney Creek in about five minutes and that ambient values should be used rather than effluent values.

8. The September 15, 2012 AEC letter page 1, the second comment from OEPA to AEC references that since AEC plans to enlarge the ponds "OEPA will need a Permit to Install application for that." OEPA went on to justify that no PTI application would be included with this NPDES action, since they would have to start the public notice period over again. "The PTI application would have to be submitted after the NPDES permit is issued." Since this permit is now being reviewed by USEPA, what prevents AEC from now meeting OEPA's requirement to submit an application for PTI? This PTI could provide additional information as to how the ponds will be constructed, lined or designed to prevent groundwater contamination and other water quality considerations. EPA requests a copy of AEC's permit to install application.

9. If a discharge is allowed for a 48 hour period within one week, how soon can the pond discharge again? Is Day 1 consider the day after that 48 hour period, meaning if the discharge occurs on a Monday and Tuesday, is discharge then prohibited until Wednesday of the following week? Or are the days of discharge considered Day 1 & 2, so a 48 hour discharge starting on Monday through Tuesday would then allow another discharge on Monday of the following week? Please explain. Also, USEPA is concerned that a cycle of 48 hour discharges once per week with little time for recovery between discharge events could adversely impact the aquatic community.

10. There is no limit of flow rate or volume, so does that mean that virtually the entire pond could discharge within that 48 hour period and not be limited to amount, concentration or load of pollutants?

11. Since Piney Creek is designated as a public water supply, per Ohio WQS rules, were public water intakes in the area and drinking water source protection plans for groundwater considered regarding the discharge of chloride and sulfate? USEPA notes that Piney Creek is also designated for agricultural uses. Illinois limits the sulfate criterion to 2000 mg/L to protect for that use. Does Ohio have a similar limitation?

12. The permit does not contain information on the proposed flow monitoring equipment and its maintenance & operation plan. EPA requests that information be contained in the permit.

13. If the discharge was confined to two-day periods as proposed, how would this affect potential concentrations of sulfate or other ions being discharged into Piney Creek during those two day discharge periods? Discuss how a two-day limit to discharges would influence sulfate or other ionic concentrations in Piney Creek <u>during the two-day period</u> and how this might affect aquatic communities residing in Piney Creek due to <u>acute</u> impacts, as compared with a more normal daily discharge scenario.

14. The above questions in #13 regard changes in the ionic profile in Piney Creek with and without the discharge. If the biota are use to a certain ionic profile (x% bicarbonate, y% chloride, z% sulfate, w% nitrate, etc) and the discharge causes the fractions of the ions to change significantly, will the aquatic life use be met? As noted in the permit's

conductivity discussions and documents, it is the anions that seem to cause physiological changes.

15. It appears that OEPA's approach is to limit the discharges to just two days per week may remove any concern regarding chronic. EPA does not agree with the approach because weekly 2-day discharges does not address the recovery time needed. Chronic WQC are generally expressed as a moving average of four days with a recovery period of three years. It emphasizes that allowing sufficient recovery time is important. In order to be conservative, there should be a chronic limit and an evaluation of the impacts of multiple 2 day discharges that occur weekly.